



**ST.MARY'S UNIVERSITY**  
**SCHOOL OF GRADUATE STUDIES**

**ENTERPRISE RESOURCE PLANNING IMPLEMENTATIONS IN  
MOHA SOFT DRINKS INDUSTRY S.C: CHALLENGES AND  
PROSPECTS**

**BY**  
**YORDANOS ASALF**

**JUNE, 2020**  
**ADDIS ABABA, ETHIOPIA**

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PROSPECTS**

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**A THESIS SUBMITTED TO SCHOOL OF GRADUATE STUDIES OF ST.MARY'S  
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**ADDIS ABABA, ETHIOPIA**

## **DECLARATION**

I, the undersigned declared that this thesis entitled “Enterprise Resource Planning implementations in MOHA Soft Drinks industry S.C : challenges and prospects” Is my original work and has not been submitted to St. Mary’s University or any other institution of higher learning as a thesis and all sources of information have been duly acknowledged.

I have carried out the research independently under the supervision of the research advisor,  
Dr. Zenegnaw Abiy

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## **ENDORSEMENT**

This is to confirm the thesis entitled I, the undersigned declared that this thesis entitled “Enterprise Resource Planning implementations in MOHA Soft Drinks industry S.C: challenges and prospects” conducted by Yordanos Asalf was under my supervision.

The work is original in nature and is appropriate for submission for the award of the masters of art in Accounting and Finance

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**June 2020**

**Addis Ababa, Ethiopia**

**ST.MARY'S UNIVERSITY**  
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As members of the Examining Board of the final MSc, open defense, we certify that we read and evaluated the thesis prepared by Yordanos Asalf and recommend that it be accepted as fulfilling the thesis requirement for the Degree of Master of Art in Accounting and Finance

**APPROVED BY BOARD OF EXAMINERS**

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## LIST OF ACRONYMS

ERP .....	Enterprise Resource Planning
SCM .....	Supply Chain Management
HCM.....	Human Capital Management
EPM .....	Enterprise Performance Management
EC.....	Electronic Commerce
BIW .....	Business Information Warehouse
CRM .....	Customer Relationship Management
SAP.....	Systems Applications and Products
Oracle.....	Oak Ridge Automatic Computer and Logical Engine
BAAN.....	Budget Authorization Account Number
SDLC.....	Development Life Cycle
TQM.....	Total quality management
SPSS.....	Statistical Package for the Social Sciences

## ABSTRACT

*The purpose of this study is to assess challenge and prospect implementation of enterprise resource planning in MOHA Soft Drinks S.C. The population of this study is the employees of the company and who are Enterprise Resource Planning users in various departments of the organization. A purposive sampling technique was applied; this sampling method helps to get respondents who have good insight of ERP. Therefore the study takes 160 respondents as target respondents who are ERP users. Both primary and secondary data were collected. The study utilized both quantitative and qualitative data analysis techniques. To answer the research questions, descriptive statistics such as mean, percentage and frequency tables were used. The finding of the study indicates that the ERP implementation of MOHA Soft Drinks S.C was less than adequate in terms of change management and training. The finding also indicates the major challenges that affect effective ERP implementations in MOHA Soft Drinks S.C. are data cleaning challenge, problems in user's adaptability, system network interruption, and Technical challenges, Lack of knowledge & skill and resistance to accept the ERP. The study recommends that the organization have to create training and involvement of employees for the benefit and usage of ERP. The study also recommends that there have to be enough technical support personnel. Further the study recommends that Communication between the management and the ERP users have to be open and frequent by having brief and continuous meetings.*

**Keywords:** ERP (Enterprise Resource Planning), ERP implementation, ERP practice

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

According to Almgren & Bach (2014) an Enterprise Resource Planning system (ERP) is a fully integrated business management system covering functional areas of an enterprise like logistics, production, finance, accounting and human resources. It organizes and integrates operation processes and information flows to make optimum use of resources such as human, material, money and machine. ERP System is a strategic tool which integrates information and information-based processes within and across functional areas in an organization. The main objective of an ERP is to increase operating efficiency by improving business processes and decreasing costs. In addition, ERP standardizes and integrates process and data which in turn allows organizations to centralize administrative activities.

Ehie and Madsen (2005) stated that ERP application involves more than changing software or hardware systems. Ideally, by reengineering business processes, ERP application can help an organization to benefit from higher levels of efficiency and improved performance. Therefore, ERP application may cause changes that lead to resistance among employees. Consequently, balancing conflicts between staff and technology and effectively managing employees in the change process are key elements for the successful ERP application.

Applying ERP systems has become critical to the enhancing of the informational integration between internal organizational environment and external business environment. ERP system plays the role of enterprise nervous system by using IT tools and communication means to provide a total integrated solution for business (Yingjie, 2005). A business organization around the world has been implementing ERP systems since the 90s to enable uniformity in their information system and to re-engineer business processes. ERP implementation process involves a wide range of complicated resources and issues like integrate all functional areas of business, including sales, logistics, billing, production, inventory management, quality management, and human resources management into one organization wide system using software application packages from their vendor like Systems Applications and Products

(SAP), Oak Ridge Automatic Computer and Logical Engine(Oracle), Budget Authorization Account Number (BAAN), J.D. Edwards, PeopleSoft.(Forger and Gary 2000). This is because; ERP has incorporated other business extension modules such as Supply Chain Management (SCM), Human Capital Management (HCM), Enterprise Performance Management (EPM), Sales Force Automation, Electronic Commerce (EC), Business Information Warehouse (BIW) and Customer Relationship Management (CRM) to become more competitive (Abbas, 2011, Matende & Ogao 2013).

In spite of ERP's significant growth and its benefits, there are a number of challenges that companies may encounter when implementing ERP. Some literatures; Nebiyu (2018) in Commercial Bank of Ethiopia; Engidayehu (2014) in Ethio Telecom; Fetsum (2017) United Nations Economic Commission for Africa; and Sintayehu (2014) in Ethiopian Airlines indicates that ERP implementations have found out that sometimes failed to achieve the organization's targets and desired outcomes. The success or failure of ERP implementation is closely related to how the companies handle the process. The ERP implementation process could differ from organization to organization that might be related to goals, scope or the available resources Much of the failure of ERP implementations were not caused by the ERP software itself, but rather by a high degree of complexity from the massive changes ERP causes in the organizations (Scott & Vessey, 2000 ; Laudon,1998). However, despite the high expectations that usually accompany ERP implementation they are blighted by over expenditure, time delay and in some cases failure to implement the systems projects. Indeed, over 50% of ERP projects have been considered to be unsuccessful or do not achieve their expectations (Holsapple, 2005: 344). Common problems when implementing ERP systems occur because of various users' factors and lack of integration between existing systems with ERP applications (Kalbasi, 2007).

The MOHA Soft Drinks Share Company is mostly dependent on technologies while the ERP system is not a new phenomenon and newly adopted system in the company only some of the plants implement the system. Therefore this research examined the implementing process and challenges of ERP in MOHA Soft Drink S.C and forward a possible recommendation based on the research finding.

## **1.2 Background of the Organization**

MOHA Soft Drinks Industry S.C was established on May 15, 1996 acquiring Nifas Silk Plant, Teklehaimanot Plant, Gondar Plant, and Dessie Plant from the Ethiopian Privatization Agency with paid capital of Birr 108,654,000. The Company currently has seven operating units including Summit Plant, Bure Plant, and the recently inaugurated Hawassa Plant in the Southern Nations & Nationalities People's Region. The Teklehaimanot plant launched a renovation scheme, in which it replaced all the old machinery by new ones and set out as of January 1978 to produce Pepsi Cola, Mirinda and Teem to the capacity of 25,000 bottles per hour. The total work force is 579 workers. (<https://mohasoftdrinksindustry.com>).

MOHA Soft Drinks S.C, Teklehaimanot Plant adopted ERP system in the year 2012 by using Navision software. It was also noted in the document review of the strategic plan, MOHA is implementing ERP (Enterprise Resource Planning) working with Ethio Telecom, which is an advanced communication technology especially in the manufacturing industry for effective utilization of resources. With regard to its resource and strategic plan initiatives, as per the findings of the study, more work has not been done on the human resource and no strategic initiatives were shown in the regard. Technologically, MOHA is able to implement the ERP system. On the technique, production, sales, finance, logistics, human resource, procurement and quality departments which link the head office with plants.

The technique department uses the ERP system to record materials for production orders and transfers the materials to the production unit. In addition to this the department uses ERP for preparing reports by recording and checking the machines on a daily, weekly, quarterly, semiannually, and annually basis. The production department uses ERP systems to record daily production, receiving raw materials, outputs, down time breakages and labor per day. The sales department uses the system for limited activities like recording the cash and credit sales. The ERP system is used in the Finance department only for controlling purposes. The rest of the activities of the department is undertaken by the peach tree software. The human resource department uses ERP for only recording Employees data. The logistics department uses the system for checking the sales order when there is a request of delivered items. And procurement department use ERP to create quotes for purchasing. The MOHA Soft Drinks Industry S.C Teklehaimanot Plant takes more than five year to completely begin

implementing the ERP system in all of its departments. The departments that are even engaged in using the ERP system face challenges from different perspectives. Therefore by considering these situations this study tries to assess the implementation process of the company in accordance with the uses of ERP under its components.

### **1.3 Statement of the problem**

The implementation of an ERP system in an organization is a very complex project. The implementation of such systems is difficult and involves a high cost, as well as considerable time and resources. Organizations contemplating such a project must be aware of the necessary commitments. The most important thing is that the implementation of ERP projects is a major event in the life of an organization. An ERP system is expected to change a lot of business processes, and activities within the organization and is often initiated with much expectation about the benefits and the transformation that the project would bring to the organization (Ibrahim, 2010).

MOHA Soft Drink S.C Teklehaymanot plant started implementing ERP in the year 2012 by using the Navision software and it took 5 years to begin the implementation phase by entering the data to the software. According to Cohen (2001) the whole implementation process can take up from three to five years. Cohen also explained that, considering today's business dynamics, companies cannot afford spending too much time on the technology implementation in spite of all the benefits as competitors might have enough time to overtake them. Moreover, lengthy implementations can increase the risk of project failure; reduce the management and staff commitment, decline productivity and delivery performance and cause the loss of the customers. And this phenomena's characterizes MOHA.

According to Jones (2002) the phases of the ERP life-cycle consist in the several stages that an ERP system goes through during its whole life within the hosting organization. The phases have been identified by Jones are adoption decision phase, acquisition phase, implementation phase, use and maintenance phase, evolution phase and retirement phase. From this point of view the company is in the early phase of ERP life cycle. Based on the preliminary assessment the company's eight departments (i.e. Production, Sales, Technique, Quality, Logistic, Procurement Human Resource and Finance) are currently implementing



the ERP system on their respective activities. From the preliminary investigation these departments seem not still fully implementing ERP system because of different factors. For instance the finance department is using peach tree accounting system in line with the ERP. This department uses ERP only for controlling stock movement. Beside this the ERP implementation looks like it is facing some challenges up on the implementation process.

Empirical studies that have been done on the ERP implementations are few. For instance Engidayehu (2014) investigated Enterprise Resources Planning (ERP) Implementation in the case of Ethio Telecom. In his study he found that the deployed ERP system is not properly implemented and not effective across the divisions. According to Nebiyu (2020) ERP system is being practiced effectively across the divisions of the organization where the system is implemented although problems which hinder the practice of the system related to technological, organizational, people, and process challenges were identified while implementing ERP project.

The success of ERP implementation differs from organization to organization. There are studies conducted in the implementation of ERP system, (E.g. Nebiyu (2018); Engidayehu (2014); Fetsum (2017) in the United Nations Economic Commission for Africa; and Sintayehu (2014) in Ethiopian Airlines. These studies are conducted on service providing companies while this study assesses manufacturing companies. Beside this even if there are some studies conducted on MOHA Soft Drink S.C but due to the fact that the ERP system is newly introduced to the company this study found to be needed. Therefore, this study is conducted to assess the implementing process and challenges of ERP in MOHA Soft Drink S.C.

## **1.4 Objective of the study**

### **1.4.1 General objective**

The overall objective of this study is to assess the enterprise resource planning implementation in MOHA Soft Drinks industry S.C.

### **1.4.2 Specific objectives**

The research has the following specific objectives

- To assess the level compatibility of ERP software with the needs of organizational processes.
- To examine the data integration in information accessing of the organizational subsystems.
- To assess the ability of the ERP system to cope with changes in the external environment.
- To examine the extent to which ERP implementation training has upgraded company practices
- To investigate the major challenges in the implementation of ERP in the departments.

## **1.5 Significance of the study**

The findings of this research will provide insight to both employer and employees about the systems functionality with respect to support activities and the company successfully implementation and integration of such a system, highlighting the processes used, the obstacles faced and how they can be solved, as well as the gains achieved. This research could also be used as a reference for further research in the area and explore major issues related with the system deployment for designing significant milestones as a base and make it available for academic reference. Finally, it provides useful information and practical suggestions that may help managers of the company at different levels and users to get a better understanding of how to deploy such systems.

## **1.6 Scope and limitation of the study**

The scope of the study is delimited to assess the ERP implementation in the case of MOHA Soft Drinks industry S.C. This study only considers Teklehaimanot plant among the seven plants because the plant is currently implementing ERP system. The conceptual scope is focused only on the current ERP implementation situation in MOHA Soft Drink S.C and the challenges for the implementation of ERP. This research uses qualitative and quantitative analysis and the research employs cross sectional study for investigating the ERP implementation by using descriptive data analysis techniques. The main limitations of this study were constraints of time and due to the COVID-19 outbreak detail in-person observations of the company, face-to-face interviews, fieldwork and other data collection was a bit challenging for much of the time. But the researcher tries to use different techniques to overcome this.

## **CHAPTER TWO LITERATURE REVIEW**

### **2.1 Theoretical review**

#### **2.1.1 The concept of ERP**

An ERP system can be defined as a program that intends to provide solutions to and interface multiple corporate functions, including finance, human resources, manufacturing, materials management, and sales into a unified database system (Davenport, 2000). Key data components of an ERP system are presented in Figure 1 below. The figure illustrates the flow of information in an ERP system and how certain data provides people with direct access to real-time information. The figure also illustrates the stakeholders that feed information into or extract information out of the ERP system. As depicted from the figures, the central database feeds information into the procurement department, project management, human resource management applications, inventory and supply applications, financial applications and the reporting applications (Sayegh, 2010).



Figure 1 Components of an ERP System (Sayegh, 2010)

ERP systems are characterized as large, complex, multifunctional, modular and generic systems which support and integrate the key functional areas of an enterprise. An ERP system is more than merely an IT solution and implementing an ERP system can be

considered as “a change management initiative which encompasses a review of business processes across the whole organization, requiring careful management” (Nafeeseh & Al-Mudimigh, 2011).

Enterprise Resource Planning (ERP) is a multi- segment application software system that assists organizations to modernize their business processes. It transforms organizational transaction activities by replacing a number of stand-alone legacy systems with a system that enables organizational-wide integration. Malhotra and Temponi (2010) defined Enterprise Resource Planning (ERP) as software that attempts to integrate all departments and functions across a company into a single computer system that can serve all those departments’ particular needs. ERP has the capacity to integrate all software programs that serve the requirements of specified functions organized into a single, integrated software program that runs off a single database so that the various departments can easily share information and communicate with each other Umble et al., (2013).

ERP refers to large commercial software packages that promise a seamless integration of information flow throughout an organization by combining various sources of information into a single software application and a single database. Enterprise resource planning systems encompassing modules supporting functional areas such as planning, manufacturing, sales, marketing, distribution, accounting, financial, human resource management, project management, inventory management, service and maintenance, transportation and e-business or I-procurement. The architecture of the software facilitates transparent integration of modules, providing flow of information between all functions within the enterprise in a consistently visible manner. Apart from the ideas mentioned above the major characteristics of ERP systems are: a packaged software system designed for the client environment, the integration between the modules and across the entire organization, access to data in real time, data storing and retrieving processes in an enterprise-wide database, and management and analysis functionalities. (Fiona 2002)

ERP, a term Gartner Research Group began to use in 1992, evolved from Material Requirements Planning (MRP) and Distribution Requirement Planning (DRP) systems of the 1960s (Esteves et al, 2001). MRP that was used in the 1970’s to generate operation

schedules, structuring of production system and raw materials purchasing evolved to MRP II in the 1980s for coordinating manufacturing processes. The availability and affordability of new technologies of the 1980's facilitated the integration of business systems that derived the material with capacity requirements associated with the operation plan (Manneti, 2001).

The improvement of technology in the early 1990s permitted the development and integration of all business processes that support the planning and control of all resources needed to take customer orders, make the product, ship and account for orders (Manneti, 2001). The migration to ERP helped to integrate key business processes including product design, information warehousing, materials planning, capacity planning, communication systems, human resources, finance, and project management.

ERP systems has become one of the most renowned business software in the marketplace and an essential part of everyday IT investments for many organizations that believe ERP system will deliver resolutions for their IT problems and therefore provide effective online transactions with the current electronic systems era. In addition, it is indicated that one of the meaningful and global improvements of IT is the wide recognition of ERP systems by many organizations including very big public organizations worldwide which brands ERP systems as the most rapid growing system in the operational area (Zhang et al, 2008).

Moreover, ERP systems are expected to have additional characteristics such as support for multiple currencies and languages (but not Amharic), which is critical for multinational companies, and support for specific industries. Hence; companies who are implementing the ERP system are benefiting from the single integrated system by transforming or reengineering their mostly legacy information system. And it is also defined as a method for the effective planning and controlling of all the resources needed to take, make, ship and account for customer orders in a manufacturing, distribution or service company. ERP systems are configurable information systems packages that integrate information and information-based processes within and across functional areas in an organization (Henry, 2002).

### **2.1.2 System analysis and design**

According to Jawahar (2012) in business, system analysis and design refers to the process of examining a business situation with the intent of improving it through better procedures and methods. System analysis and design relates to shaping organizations, improving performance and achieving objectives for profitability and growth. The emphasis is on systems in action, the relationships among subsystems and their contribution to meeting a common goal looking at a system and determining how adequately it functions, the changes to be made and the quality of the output are parts of system analysis. Organizations are complex systems that consist of interrelated and interlocking subsystems. Changes in one part of the system have both anticipated and unanticipated consequences in other parts of the system. The systems approval is a way of thinking about the analysis and design of computer based applications. It provides a framework for visualizing the organizational and environmental factors that operate on a system.

When a computer is introduced into an organization, various functions and dysfunctions operate on the user as well as on the organization. Among the positive consequences are improved performance and a feeling of achievement with quality information. Among the unanticipated consequences might be a possible threat to employee's job, a decreased morale of personnel due to back involvement and a feeling of intimidation by users due to computer illiteracy. The analyst's role is to remove such fears and make the system a success. The analysis also describes that systems development can generally be thought of as having two major components: Systems analysis and Systems design. System design is the process of planning a new business system or one to replace or complement an existing system. But before this planning can be done, we must thoroughly understand the old system and determine how computers can best be used to make its operation more effective. System analysis, then, is the process of gathering and interpreting facts, diagnosing problems, and using the information to recommend improvements to the system. This is the job of the systems analyst Jawahar (2012).

According to Russell( 2002); Ghezzi et al., (2002) developing software, which is within cost and time schedule, fulfils customer requirements and is reliable, seems to be the ultimate

challenge for today's software professionals and calls for a systematic approach to software development. Once upon a time, software development consisted of a programmer writing code to solve a problem or automate a procedure. In those days, whenever a developer was tasked to perform programming or coding, he immediately would jump to it, start programming with or without full knowledge of what the system would look like, how the features were arranged. This was feasible because systems were very simple. However, nowadays, systems are so big and complex that teams of architects, analysts, programmers, testers and users must work together to create the millions of lines of custom-written code that drive our enterprises. In the absence of a proper software development plan, the developer is full of ideas, he/she wants to implement them all, but tends to forget about them because other features need to be prioritized. To manage this, a number of System Development Life Cycle (SDLC) models have been created. The advantage of adhering to a life cycle model is that it follows a systematic and discipline manner. It saves time, features of the system are well documented and above all, there is proper management and execution of plans. Without a life cycle model in place, the probability of chaos and project failure would have been very high.

### **2.1.2 ERP History**

Kalakota and Robinson (2001) indicated that ERP systems have their roots in Materials Requirement Planning (MRPI) systems, and Manufacturing Resource Planning (MRPII), which emerged during the 1960s. MRPI was mainly used for inventory control and managing production, while MRPII was developed to evaluate the entire production environment and to create or adjust master schedules based on feedback from current production and purchase conditions. The development of these manufacturing coordination and integration methods and tools made ERP systems possible. Companies such as SAP, Oracle, and others moved away from legacy MRPII systems and began the process of ERP implementation.

ERP systems have successfully entered the stage of relative 'easy configuration' that attracts firms adopting ERP packages in developing their ERP systems (Jacobs and Weston, 2007). From 2001 to 2006, the International Data Group (IDC) reviewed that global spending on ERP systems increased at an aggregate annual rate of 13.5%, and predicted that there would be a 5% annual growth between 2006 and 2010 (Velcu, 2010). Nowadays, over 70% of firms



with more than 2500 employees have implemented ERP systems (Ragowsky and Gefen, 2008). Many firms have increasingly recognized that the advantages of ERP and the trends of ERP implementation have spread across countries. Implementation of ERP is not only widely adopted in advanced countries such as the USA and the UK, but also in developing countries like China, India, and Brazil (Ngai et al., 2008). More than 60% of US firms have implemented ERP systems yielding higher operational benefits (Sheu et al., 2004). The Taiwanese government also helps small and medium-sized enterprises to implement ERP to exploit opportunities and strengthen their competitive capabilities (Shiau et al., 2009). Choi et al. (2003) observed that adoption of ERP enables firms to retrench developing cost, reduce risk of business operations and adjust and align rapidly in dynamic business environments. Nicolaou (2004) suggested that implementation of ERP brings both tangible and intangible benefits. The tangible benefits pertain to cost efficiencies in inventory, personnel, procurement as well as improvements in productivity, cash or order management and overall profitability, whereas the intangible benefits include internal integration, enhanced information and processes, and improved customer service. Hendricks et al. (2007) also proposed that the introduction of ERP brings about a significant effect in the firm's performance in terms of profitability. Ram and Swatman (2008) and Velcu (2010) pointed out that ERP systems make an increased contribution to business performance pertaining to reduced operating costs, accurate demand forecasts, improved decision making, better resource allocation, greater support for business alliances, superior business flexibility and facilitation of business learning and empowerment.

#### **2.1.4. ERP implementation**

ERP implementation is defined as a firm's activity to adapt, configure, and integrate the information flow and business processes necessary to support different departments and functions in an organization through the use of IT architecture that collects and stores data in real time. This definition comes from the dynamic capability of a firm's perspective. Even though a company may implement ERP, due to market changes and the advent of new information technology, companies should still adapt, reconfigure, and integrate their information flow and business processes. In this context, the concept of adaptation,

configuration, and integration is very critical to implementing an ERP system (Abdinnour, 2003).

Loh and Koh (2004) mentioned the importance of configuration, integration, and user training under uncertainties during the implementation of ERP systems. Problems can arise from false software configuration and system module integration, communication breakdowns, conflicts between business objectives and ERP system objectives, labor shortage, unskilled personnel, and poor data collection.

Davenport (2000) describes the major elements of a rational approach to implementing an ERP system. This approach consists of two parts: (1) preparing the people, and (2) preparing the technical system (Abdinnour-Helm et al., 2003). Preparing the people is about training end users. Preparing the technical system is to adapt, configure and integrate the information system. Therefore, integration, configuration, adaptation, and user training are critical factors in the ERP implementation stage.

#### **2.1.4.1 Integration**

Integration is referred to as the degree to which a firm achieves unity in organizational subsystems by harmonizing different departments, modules, software, and legacy systems. Integration is about achieving a unity of effort in organizational subsystems (Lawrence and Lorsch, 1969; King and Flor, 2008; Duncan, 1995; Al-Mashari et al., 2003). It is to embrace both a set of physical factors and information flows that span the value chain. The organization possessing higher levels of integration tends to have higher performance (Lawrence and Lorsch, 1969; Vonderembse et al., 1997).

The benefits of an ERP system are limited unless it is seamlessly integrated with other information systems. There are many challenges in ERP integration in organizations: seamlessly integrating with various functional ERP modules, integrating with other business software applications, integrating with legacy systems, and integrating the ERP system with suppliers. First of all, for a successful ERP integration, ERP module integration is imperative. ERP software is made up of many software modules. Each ERP software module imitates a major functional area of an organization. Common ERP modules consist of

modules for product planning, purchasing from suppliers, inventory control, manufacturing, product distribution, sales order tracking, finance, accounting, marketing, and human resources. Companies, in general, selectively implement the ERP modules that are appropriate and available in their economic and technical environments. They usually implement modules from the same ERP vendors which initially implement the ERP module(s) in their organizations. On the other hand, not all companies obtain all ERP modules from a single vendor. Therefore, integration of ERP modules can be either the integration of modules from different vendors or different versions of the modules from the same vendor. Secondly, integration with other business software applications is very important. E-business practice is the combination of strategies, technologies, and processes to electronically coordinate both internal and external business processes and to manage enterprise-wide resources, such as manufacturing executive systems (MES) and advanced planning and scheduling systems (APS), customer relationship management (CRM), supply chain management (SCM), and knowledge management (KM). To maximize the benefits of the ERP system, firms should tightly integrate the system with other internal and external business software. Using standardized data definitions and codes that are shared with other information systems is very important. Third, integration with legacy systems is also an important factor in ERP integration. Organizations have gathered huge amounts of data over the years, using legacy systems. The data in legacy systems are crucial to the survival, operations, and growth of corporations and non-profit organizations. Therefore, integration of ERP systems with legacy systems is very important, but more complex than the integration of ERP modules. The communication between ERP software systems and legacy systems involves the installation of third-party interface software. Fourth, integrating an ERP system with the suppliers using communication protocols and standards is also another considerable issue in ERP system integration (Al-Mashari et al. 20003).

#### **2.1.4.2. Configuration**

Configuration is referred to as the degree to which a firm matches the software application packages to organizational processes (Davenport, 1998; Kim et al., 2005; Abdinnour-Helm et al., 2003; Klein, 2007). Configuration is to fit the ERP system to the business and to simultaneously fit the business to the ERP system (Davenport, 2000). Hong and Kim (2002)

found in their research that ERP implementation success significantly relies on the organizational fit of an ERP system. ERP implementation may cause drastic organizational changes that need to be cautiously managed. Unlike other software, ERP implementation requires that organizational processes are configured to fit the basic business practices that are embedded in such application packages. When ERP implementation involves configuring the existing business processes to the standard business process of ERP, other organizational components (e.g. organizational structure, performance measurement, compensation, organizational culture, training, etc.) and their interactions must also be changed simultaneously (Hong and Kim, 2002).

Due to the diversity of organizational dimensions, researchers emphasize the fit between organizational structure and information systems (Morton and Hu, 2008; Livari, 1992; Kanellis et al., 1999). In a review of IS contingency research, Weil and Olson (1989) found over seventy percent of studies related to IS implementation followed a model assuming that the better the fit among the contingency variables with a firm, the better the performance. They classified the contingency variables as strategy, structure, size, environment, technology, task, and individual characteristics.

ERP misfit is attributable to firm-specific requirements that do not match the capabilities of ERP (Morton and Hu, 2008; Soh et al., 2000). Organizational misfits of ERP stem from the conflicting interests of ERP vendors and the organization which uses an ERP system (Hong and Kim, 2002). Thus, the concept of organizational fit seems to be an important research topic to measure the level of the IT implementation success.

#### **2.1.4.3 Adaptation**

Adaptation is referred to as the degree to which a firm accepts and adjusts new technology and systems to cope with changes in the external environment (Nah et al, 2001; Henfridsson, 2000; Hong and Kim, 2002). Adaptation is to accept new technology in a changing environment (Nah et al, 2001). In a rapidly changing business environment, the ERP implementation process is rarely a simple matter of realizing a plan. Instead, ERP is often a dynamic process of reciprocal adaptation between IT and the surrounding environment. Within the vibrant implementation process, adaptation is necessary because it is unusual for

an ERP system to flawlessly match the environment of its users. Technological adaptation is the adjustments and changes during the installation of a new technology in a given setting (Hong and Kim, 2002).

Most organizations adapt ERP to their unique organizational contexts (Swan et al., 1999). Hong and Kim (2002) posit that ERP implementation success relies on the type and extent of ERP adaptation. In the adaptation stage of the IT implementation model, (1) an IT application is developed, installed, and maintained, (2) organizational procedures are revised and developed, and (3) organization members are trained both in the new procedures and in the new IT application (Cooper and Zmud, 1991). The concept and process of adaptation is relevant not only to custom software but also to off-the-shelf software packages (Markus and Tanis, 2000).

Most research on the implementation of IT software packages highlights the important nature of the adaptation process (Lucas et al., 1988). From the dual perspective of technology, ERP is defined as a —technological artifact bundling material and symbolic properties in some socially recognizable form (e.g. hardware, software, practice) (Orlikowski, 1992).

Therefore, the adaptation of ERP and organizational processes needs an iterative process to involve constant social action which is influenced by both the organizational structure and an ERP system (Hong and Kim, 2002).

#### **2.1.4.4. User Training**

The implementation of an ERP system is not only a technical project, but also a people project. User training is referred to as the degree to which a firm reskills and professionally develops the IT workforce (Nah et al, 2001; Al-Mashari et al., 2003; Soja, 2006; Finney and Corbett, 2007; Bingi et al., 1999 ; Stratman and Roth, 2002). The source of ERP implementation success is not only the change of technology, but also the change of tasks, structures, and personnel (Stewart et al., 2000). One of the key challenges in ERP implementation is user training, because a lack of training results in implementation failure (Gupta, 2000). User training is to train, retrain, and develop the IT workforce to understand how the system will change business processes (Nah et al, 2001).

User training is considered an important factor that reduces the resistance of change and positively affects the possibility of a successful ERP system implementation (Bradley, 2008). There will be a higher possibility of successful implementation of ERP systems when systematic and efficient education programs are provided for inside users. User education reduces inside resistance during the implementation process, promotes system understanding, and facilitates the implementation process. Further, training makes it possible to use the ERP systems after ERP is implemented.

User training should be emphasized, with intense investment in the training and reskilling of employees who will be using it (Sumner, 1999). Employees need training to know how the system will make business processes different. Therefore, extra training and on-site support for staff and managers during implementation are necessary.

### **2.1.5 Enterprise Resource Planning Adoption**

Total quality management (TQM) and business process re-engineering (BPR) movements are believed to be among the contributing factors to the heightened attention to the employment of IT in key business functions (Soliman and Youssef, 1998). Several researchers point to the linkages between ERP and BPR, where the former is considered a driving technology of the latter. ERP systems are seen to be effective in tying the business functional units with the various organizational information systems and their associated databases, which in the end can support the strategic aims of modern organizations (Soliman 1998). One of the major challenges in ERP adoption is flexibility assurance. Organizations will always need to integrate newly-acquired business functionalities into its data processing systems with the minimum time possible (Gupta, 2000). The flexibility of ERP systems refers to the extent to which an ERP system may be dynamically reconfigurable to define new business models and processes (Stedman, 1999). However, one of the major drivers of implementing ERP systems is their competence of being designed based on best practices and their ability to standardize business processes and systems (Cooke and Peterson, 1998). Organizations view ERP-enabled standardization as a vital means to integrate dispersed organizational systems, provide a seamless access to information organization-wide, and make informed decisions on strategic and daily business matters (Osterle et al., 2000).

The adoption of ERP systems in an organization requires intense efforts, focusing on both technological and business themes of implementation. Critical to the success of these efforts is the adequate organizational preparedness for embarking on ERP. The following list developed by Rao (2000) describes the major factors that have to be considered in the preparation stage of ERP implementation: Infrastructure resources planning - making sure that adequate infrastructure is planned for in a way that it becomes reliably available well in time (both for the pre-implementation and the post- implementation stages). Local area network ensures network support for any ERP or other applications. Servers - deploying an adequate server/network, even during the training/modeling phase. PCs - introducing new PCs with the latest configuration that would be quite adequate for most ERPs. Training facilities - establishing an adequate training center to work as a competency center. Human resources focus on building a teamwork environment where team size spans across the entire organization. Education about ERP - ERP education should be carried out across the organization about ERP success and failure practices. Commitment to release the right people - ERP is recognized as a difficult but necessary project, and the best people must work full-time on the project. Top management's commitment - top management must have a change mindset through learning at all levels: commitment to implement a version ensuring minimal customization and quick implementation; ability and willingness to consider an ongoing site as a Greenfield site; manual systems that are working reasonably well — carrying out audit exercise to find the current status and corresponding corrective actions. Top management must make the strategic decision on whether to execute a centralized or a decentralized implementation.

### **2.1.6 ERP Lifecycle**

The success of an ERP system implementation is important to organizations as it improves their existing operations. According to Velcu (2010), the ERP system lifecycle consists of three phases, the project, shakedown, and onward and upward phases. Soja and Paliwoda-Pękosz (2013) noted that the ERP system lifecycle consisted of four phases, the chartering phase, project phase, shakedown phase, and onward and upward phase. Project chartering—concerns business decisions regarding the scope of the project, budgeting, and system selection. The project phase which is the main implementation phase with the purpose of

getting the system and users up and running, Shakedown–stabilizing and incorporating IS in everyday operations.

The post implementation period for ERP systems begins after the implementation phase of an ERP system. The post implementation phase provides on-going support such as maintenance, training, and upgrades to help organizations sustain and prevent any disruptions to the system. To avoid an IS failure, the system requires continuous support from top management (McGinnis & Huang, 2007; Salmeron & Lopez, 2010). Nicolaou and Bhattachanya (2008) reported that maintaining the post implementation phase of an ERP system could support the long-term performance gain and efficiencies of the system. Many organizations upgrade and maintain their ERP systems in the post implementation phase to prevent any disruptions to the daily operations of the business (Ng, Gable, & Chan, 2002). According to Willis and Willis-Brown (2002), the post implementation stage has many challenges because the go-live phase signals a new beginning. The performance of the system continues to be challenging but necessary because the system must be extended to satisfy the current and all future business requirements (Muscatello & Chen, 2008; Wei, Liou, & Lee, 2008). Other studies have also noted that one of the main challenges in ERP systems is the high cost of maintenance and support (Law, Chen, & Wu, 2010; Salmeron & Lopez, 2010). Previous studies have indicated that training and education should be provided to end users during the implementation process. It is suggested that organizations apply training to end users during the implementation life cycle of an ERP system (Amoako-Gyampah & Salam, 2004; Woo, 2007).

### **2.1.7 Critical success factors within ERP implementation phases**

According to Jonathan & Alexander (2018) 54 articles were examined, but only ten articles had emphasized on relating the CSFs to the ERP implementation phases. 10 CSFs were identified from a generic perspective and studied in relation to the steps, and is described below. Due to lack of elaboration regarding the importance of the CSFs within the phases, the three CSFs minimum customization and strategic decision-making and project support, could not be described in detail to why they are important in the phases of an ERP implementation.



According to Loh and Koh (2003), having non-committed project participants would negatively influence the ERP implementation within the chartering phase as it is critical to identify and assign appropriate project team members before initiating the implementation. Furthermore, they identified the need of a balanced project team as necessary throughout the entire implementation project since it must consist of a mix of consultants with ERP expertise as well as internal employees with a good understanding of the business processes. They discussed that the allocation of insufficient resources is more likely to occur within this phase. Due to needed understanding of management to not only consider which ERP solution that will deliver best profits but more importantly to understand the amount of capital that needs to be distributed to the project. Furthermore, they pointed out that when the top management provides inadequate funds, the progress and success of implementation will be at risk. Hence they believed that the involvement of the top management is vital in the chartering phase as resources have to be allocated before the initiation of the ERP implementation project.

To have a successful ERP implementation project, Somers and Nelson (2001) emphasize that preparation and then making the selection of the ERP system should be conducted at an early stage of the ERP implementation project. Hence, a thorough pilot study of the potential software solutions and their possibilities should be conducted before selecting the ERP software within the chartering phase. They also stated that confusion in communication sometimes is inevitable due to language barriers or technical jargon being used, to prevent this type of doubt, clear instructions and messages must be communicated to reduce unnecessary misunderstandings. Thus, this CSF affects the ERP implementation project success within the chartering phase but also within the project phase as it helps to reduce possible resistance from employees.

Having unstructured project planning can lead to postponements for planned activities. To prevent any unnecessary delays within the project phase, it is critical to make sure that the project is realistically planned earlier in the chartering phase and have a detailed project plan established early in the implementation process (Shanks et al., 2000).

According to Rossario (2000) it is understood that there are certain factors which support successful implementation of ERP.

**Organizational Factors:** ERP implementation needs strong commitment from organization and a strong change management program in presence of people with diversified culture in the organization. When there is organizational commitment, it leads to positive influence on the implementation process. There will be effective management of structural and cultural changes at organization level and workforce level (Rosario, 2000). It is also found in the failure cases that when there is a budget overrun, management cuts the costs involved in future training. Therefore, it is essential to involve end-users while planning design and implementation of ERP systems. Smooth transition is possible with effective change management procedures (Holland and Light, 1999).

**Top Management Support: Leadership** is provided by top management which is crucial for the success of ERP implementation. Resource allocation and priority to ERP implementation projects need support from top level management. Senior management can envisage issues if any and take necessary steps proactively (Sheuet et al., 2004).

**BPR with Minimum Customization:** ERP systems have many software modules. Accordingly, organizations need to align their business processes to exploit software modules with industry best practices leading to minimum customization. The rationale behind large scale customization of ERP system may render it handicapped (Rosario, 2000). Company's vision and plan should consider full utilization of ERP software. There needs to be quantifiable goals and planning needs to be there with risk management procedures in place. Benchmarking practices are to be used in order to have benefits of ERP implementation (Al-Mudimighet al., 2001). In the process project management and its identification of milestones and critical paths to success is very important and also very active monitoring of project implementation (Somers and Nelson, 2001).

**Communication:** Communication needs to be effective to disclose progress from time to time to all stakeholders. Timeline and implementation strategy need to be explicit. Many researchers opined that ERP implementation is made either centralized or decentralized. This decision is also crucial. Based on this decision cost will be influenced. There are unforeseen

costs associated with ERP implementations. Therefore, the budget needs to be flexible and should not have assumptions and speculations (Al-Mudimighet al., 2001).

**ERP Selection:** There are many ERP packages from different vendors. Selection of ERP packages is crucial. The ERP software that aligns well to the processes of organization needs to be selected. Selecting consultants and maintaining relationships with them is to be given importance. An external and expert consultant is a necessity for successful ERP implementations. The consultant needs to provide sufficient Knowledge Transfer (KT) to the organization to increase reliance and enhance probability of success (Motwaniet al., 2002). Apart from the above, according to Skibniewski et al. (2008), ERP success factors include planning, training, top management support, software selection process participation, consulting capabilities and consulting support. ERP implementation success also depends on cost, time, and performance and benefits (Hong and Kim, 2002). ERP implementation challenges include inadequate change management, lack of commitment from top management, more customizations, misalignment, lack of sufficient training and lack of understanding of business needs (Momoh, Roy and Shehab, 2000). There are 11 factors for successful implementation of ERP. They include teamwork, support from top management, business plan and vision of organization, effective communication, project management, project champion, usage of legacy systems, change management, BPR, development and troubleshooting, monitoring and evaluation (Kuang, 2001). According to Woo (2007), success factors include top management, project management, process change, education and training and communication. The factors affecting success in ERP implementation in organizations include characteristics of the organization, management and its knowledge, products and services, vision and cooperation, resources and finance (Philip, 2010). According to Leyh (2014) critical success factors include ERP system configuration, ERP system tests, organizational fitness for ERP, project management, support from top management and user training.

### **2.1.8 Challenges OF ERP implementation**

According to Kamhawi, 2008 ERP implementation is a challenging task which involves people to deal with pre and post implementation. The organization which needs ERP implementation has to take care of effective change management steps at every phase of it.

Very good communication, management and training are essential. Many factors may influence failure of ERP implementation. The factors may be many associated with internal staff adequacy, training and change management. There are specific factors that are identified for failure of ERP implementations. They include employee resistance, lack of commitment from top level management, inadequate training. Employee Resistance is an important factor as any project fails if personnel are not educated about their perceived benefits. Proper communication, training and involvement of employees is essential. The management also needs to provide job security to employees as the employees will have misconceptions and try to resist or sabotage the efforts of ERP implementation. Lack of commitment from top level management is another factor for failure. The rationale behind this is that without full support from management, the ERP implementation results in many issues. Clearing employee doubts, assuring job security and explaining benefits of ERP system can be done by management effectively. Inadequate training and education also cause failure of ERP implementation. As the workforce constitutes diversified culture, proper training and education can help them understand the need for implementation and usage of it after implementation. Different people need different levels of training and managers need to have such programs to ensure knowledge transfer as one size does not fit for all.

However, everyone needs to have ERP basics, need for automation and the processes involved in it besides involving in change management. When employees are not fully aware of the new system, they hesitate to use it or they cannot use it optimally. This can lead to failure of the ERP system as the users are not trained well. Another factor is inadequate requirements definition. When requirements are very clearly stated, the implementation team will do it accordingly. Since the ERP system is very complex, inadequate resources is another factor for failure. The implementation is time taking, lengthy and incurs much cost to the organization. Often the expected budgets may not be sufficient and there might be hidden and unexpected costs. This has to be kept in mind when budget is allocated, and resources are to be planned. Costs, budgets, manpower needs, and infrastructure are to be estimated correctly besides having contingency plans to ensure success of ERP implementation. Software packages and business processes in compatibility is another cause of failure. There is poor fit between what organization needs and what is being implemented. When the processes in the organization are very strong and there is no optimal package in ERP, then it

is indispensable to have customization. However, customization is often an error-prone and costly affair. Therefore, it is important to choose the appropriate ERP package from the right vendor. Unrealistic expectations with respect to ROI are yet another factor for failure of ERP. Though ERP systems improve productivity dramatically, it is required to have realistic expectations on ROI. Miracles cannot be expected from ERP unless the company has its projected growth and customer prospects. Selection of ERP packages is another factor for failure. When the best suitable package is not selected, it will cause many implementation and customization problems and eventually lead to failure. Therefore, it is essential to ensure that there is the best fit between organization processes and the ERP package. Such ERP software needs to fulfill the basic needs of an organization. As mentioned above, extensive customization, leads to failure of the system. When there is over-customization, it adds more cost and time and will continue causing issues in future versions. Such a system finally makes it increasingly costly and difficult. Change management is one of the most influencing factors. If there is no adequate procedure in place for change management, it leads to failure of ERP implementation. When change management is not done with standard procedures, it will cause employees to suspect and behave against the implementation of ERP. With respect to heavy customization also change management becomes very complex in future. That will be a problem to the organization as it results in difficulties to deal with newer versions of ERP software in future. The ERP implementation needs to support evolving business needs. The rationale behind this is that, there might be changes to be incorporated in future and Business processes may be subjected to change (Kamhawi, 2008).

#### **2.1.8.1 Technical challenges in ERP implementation**

There are many possible technical challenges identified in the literature. The challenges include difficulty in customization, functional complexity in ERP software, application management complexity involved, issues with lack of support from vendors, multi-vendor complexity related to software, hardware and consultants, integrating with legacy systems, security concerns, insufficient IT infrastructure and problems associated with interconnecting functional systems (Kamhawi, 2008).

### **2.1.9 ERP Practical Application**

ERP application is a complex and dynamic process, one that involves a mix of technological and organizational interactions. According to Al-Mashari & Al-Mudimigh (2003) implementing ERP systems in many instances caused dramatic changes that need to be carefully administered to reap the advantages of an ERP solution. Tougher competition in the marketplace is generating the need to better optimize resources, improve profitability and keep customers satisfied. Companies are increasingly implementing Enterprise Resource Planning (ERP) software solutions to improve operations and provide faster customer response. Choosing an ERP solution that meets your *specific* business requirements will enable you to have a smoother operation. If the software package is written for your industry, you won't have to custom design a solution. Customized solutions are time consuming to implement and add unnecessary cost. One of the top reasons ERP implementations fail is because the software doesn't meet basic industry specific business requirements.

#### **2.1.9.1 ERP Application process**

Ehie and Madsen (2005) In order to better understand the process of ERP adoptions, a number of researchers have developed conceptual ERP life cycle frameworks or process models. They suggested a five stage ERP application process using various reviews of the previous literature: project preparation, business blueprint, realization, final preparation, "Go-Live" and support. The decisions taken during the ERP application system are strategic in nature. These decisions relate to the ERP system to be adopted, the scope of application, the application strategy, the "go-live" strategy, the training strategy, whether or not to upgrade and so on. The literature rarely considers this decision to be strategic. These decisions are strategic decisions in ERP because they: are normally adopted in organizations to support strategic objectives of organizations; commit a large amount of organizational resources; have a long-term impact on shaping the ERP system and/or organization processes; are complex because they spurn the entire organization and involve different stakeholders. The following figure illustrates the ERP application phases and the organizational choices to be made by organizations implementing ERP systems.

Project preparation phase of the application process consists of getting ready by planning and organizing people and tasks. It is a very important and critical stage of the ERP project since it constitutes the basis for the project. Among the decisions organizations have to make are decisions on the ERP product, decision on functionalities or modules, decision on the application consultant etc. Blueprint phase comprises a detailed analysis that will allow the production of documentation on the business process requirements. In addition, the blueprint phase consists of analyzing the current business processes and investigating the chances for BPR or customizations. During the blueprint phase, organizations need to decide on whether to customize the ERP system or re-engineer the existing business processes. Realization phase deals with the technical aspect and involves building up a system prototype based on the processes and procedures investigated in the former stage.

Final preparation phase is critical to the success of the application project and involves conducting a set of tuning and testing activities related to the configuration, integration, quality, interfaces and reports of the system. Moreover, this phase is concerned with the education and training of the users on the system processes, data discipline and modules. Therefore, organizations must make a decision on personnel training strategy. Lastly, go live and support phase deals with the maintenance and improvement issues to keep the implemented ERP system running and up to date. The Go Live phase includes also the monitoring of the implemented system in order to make sure to make the necessary changes and modifications if problems are to occur and that could affect the performance of the ERP. During this phase, organizations make decisions on: go live strategy, maintenance strategy, and bolt-on applications. The figure provides a pictorial representation of the ERP life-cycle phases and the application decisions organizations are required to make based on the researcher's conception (Ehie and Madsen, 2005).

### **2.1.9.2 Successful ERP Practical Application**

#### **Strategic Planning**

According to (Sean, 1981) assign a project team, Examine current business processes and information flow, Set objectives and develop a project plan. Project team: Assign a project team with employees from sales, customer service, accounting, purchasing, operations and

senior management. Each team member should be committed to the success of the project and accountable for specific tasks, i.e. developing a timeline, finalizing objectives, formulating a training plan. Make sure you include first line workers as well as management on your team. Base the selection on the knowledge of the team and status of the employee. Examine current business processes: Have the team perform an analysis on which business processes should be improved. Gather copies of key documents such as invoices, batch tickets and bill of lading for the analysis. They include that to start the team discussion, consider questions such as: Are your procedures up to date? Are there processes that could be automated? Are personnel spending overtime processing orders? Do your sales force and customer service personnel have real-time access to customer information? The team members should also conduct interviews with key personnel to uncover additional areas of improvement needed. Set objectives: The objectives should be clearly defined prior to implementing the ERP solution.

According to Sean, 1981 ERP systems are massive and you won't be able to implement every function. You need to define the scope of implementation. Ideally, the scope should be all inclusive. But practically, it is very difficult to implement. Examples of objectives would include: Does the solution reduce backlogs? Can the solution improve on-time deliveries? Will you be able to increase production yields? Develop a project plan: The team should develop a project plan which includes previously defined goals and objectives, timelines, training procedures, as well as individual team responsibilities. The end result of the project plan should be a "to do" list for each project team member. Procedure Review: review software capabilities, Identify manual processes and develop standard operating procedures. Review software capabilities: Dedicate 3-5 days of intensive review of the software capabilities for the project team. Train on every aspect of the ERP software to fully educate the team on capabilities and identify gaps. Determine whether modifications are needed prior to employee training. Identify manual processes: Evaluate which processes that are manual and should be automated with the ERP system. Develop standard operating procedures (SOPs): for every aspect of your business. These procedures should be documented. Make sure that you modify the document as your SOPs change. This is a huge task, but it is critical to the success of your implementation.



## **Data Collection and Clean-Up**

Convert data: You can't assume 100% of the data can be converted as there may be outdated information in the system. Determine which information should be converted through an analysis of current data. Collect new data: Define the new data that needs to be collected. Identify the source documents of the data. Create spreadsheets to collect and segment the data into logical tables. Review all data input: After the converted and manually collected data is entered into the ERP database, then Data drives the business, so it is very important that the data is accurate. Data clean-up: Review and weed out unneeded information.

## **Training and Testing**

Sean, 1981 considers *Pre-test the database* as the project team should practice in the test database to confirm that all information is accurate and working correctly. Use a full week of real transaction data to push through the system to validate output. Run real life scenarios to test for data accuracy. Occurring simultaneously with testing, make sure all necessary interfaces are designed and integration issues are resolved to ensure the software works in concert with other systems.

**Verify testing;** Make sure the actual test mirrors the Standard Operating Procedures outlined in step 2, and determine whether modifications need to make.

**Train the Trainer:** It is less costly and very effective if you train the trainer. Assign project team members to run the in-house training. Set up user workstations for at least 2 days of training by functional area. Provide additional tools, such as cheat sheets and training documentation. Refresher training should also be provided as needed on an ongoing basis.

**Final Testing:** The project team needs to perform a final test on the data and processes once training is complete and make any needed adjustments. You won't need to run parallel systems, if you have completed a thorough testing.

**Evaluation:** Develop a structured evaluation plan which ties back to the goals and objectives that were set in the planning stage. In addition, a post-implementation audit should be performed after the system has been up and running for the first week for reconciliation

purposes and three to six months following to test whether or not the anticipated ROI and business benefits are being realized. Comparing actual numbers with previously established benchmarks will reveal if the software tool does what it is intended to do - add value to the business. It is important to periodically review the system's performance to maximize ROI. Upper management and project team members should be committed for the company to realize the benefits of successful ERP (Sean, 1981).

## **2.2 EMPIRICAL REVIEW**

Under this subsection Empirical studies that have been done on Enterprise resource planning will be discussed. Such review is very important in identifying missing gaps of the earlier studies and suggests hypotheses that can be tested empirically. Changes are taking place on the extent of ERP.

Aliyu et al. (2020) investigated using systematic document review to systematically appraise current and previous literature on enterprise resource planning, and investigate the critical factors that determine their successful implementation. The aim of this paper is to review prior studies on Enterprise Resource Planning (ERP) from 2002 to 2016 including implementation benefit/success, factors affecting implementation and implementation successes of ERP. The finding of the study is stated CSFs by separating them into four categories which are organization related factors, project related factors, customization of ERP factors and individual related factors. The rationale for analyzing these elements in terms of these four key dimensions is that management in considering which factors are key to the successful implementation of ERP systems can ensure that they align the attributes.

Panant et al. (2015) conduct their research on Assessment of ERP system implementation in the operational management - a case study of the logistic trading firm in Thailand. To ensure success in changing the enterprise resource planning (ERP) system from manual or traditional to electronic systems, the system implementation assessment is considered significant for the Life Cycle of the System Development (SDLC). This paper was designed to explore the ERP system evaluation determinants in the post-implementation phase of one logistics trading company in Thailand.

Uchitha et al. (2013) employed hypothesis testing based on quantitative data, a deductive approach was used to identify factors affecting the successful implementation of ERP projects, find out the level of practice of each factor in Sri Lankan organizations and recommend best practices to minimize the ERP project failures. The findings of this research are based on a survey of 31 client organizations and 32 ERP consultants selected by judgmental sampling method. There are three reasons for each customer and consultant viewpoint where the quality of practice is poor; product selection process, project planning, customer engagement, consultant competence and communication.

Noorliza et al. (2017) investigated Factors affecting Enterprise Resource Planning (ERP) systems adoption among higher education institutions in Egypt. The objective of this research paper is mainly trying to introduce a conceptualized research model that can be used to examine ERP adoption among HEIs. This article contributes to the development of the theoretical framework of the ERP adoption to explain the competitive advantage within HEIs by using the TOE framework. The current study will provide guidelines to ERP providers, the government, and HEIs in Egypt to accelerate ERP adoption.

Engidayehu (2014) employed a descriptive nature to assess the implementation of Enterprise Resources Planning in Ethio Telecom and to recommend possible solutions for the gap created during the implementation. The result shows that the deployed ERP system is not properly implemented and practiced on the basis of the selected effectiveness variables; it is observed that the ERP system is not effective across the divisions the system is implemented. In addition, problems which hinder the practice of the system were identified. As a result, lack of appropriate training for all system users was identified as the most serious problem while proper support from the integrators side and lack appropriate customization process in relation to the companies as well as countries regulatory framework were also identified as the next most serious problems.

Fetsum (2017) undertakes his research using Regression model to discover the effective project management, change management and training are critical factors that influence successful implementation of an ERP. The findings of the study indicate that ERP implementation success at the United Nations Economic Commission for Africa when

evaluated against critical success factors was not adequate as measured by the process experts of the system in the organization. The study then concluded that organizations should identify and outline critical success factors applicable in their area of expertise for implementing ERP successfully.

Nebiyu (2020) employed the researcher has used a descriptive research method to assess the practices and challenges of ERP project implementation in the bank and to recommend the possible solutions for the gap identified during the implementation. Consequently, the paper focused on the practice, success factors & challenges. However, regarding success factors, the most critical success factors such as top management commitment, project team composition, training & education and system's customization & integration were found out of all critical success factors. It is also observed that the ERP system is being practiced effectively across the divisions of the organization where the system is implemented although problems which hinder the practice of the system related to technological, organizational, people, and process challenges were identified while implementing ERP project. These challenges were data cleansing challenge, Problem in User's adaptability, System performance & network interruption, Integration of modules interface with existing system, Standardization challenges, Knowledge and skill for ERP implementation and technical challenges were the major one encountered.

Sintayehu (2014) also conducted research on the success factors for implementation of the Enterprise Resource Planning system at Ethiopian Airlines. The objective of the study was to investigate CSFs and sharing experiences to other Ethiopian organizations with similar context and environment. At last, the researcher identified twenty factors that can be critical for the success of ERP system implementation in the context of Ethiopia. These are project planning, top management support, project management and leadership, capability of consultants, change management and communication, organizational readiness and overall knowledge transfer. The researcher also recommended more single and multiple case studies of ERP implementation should be conducted in Ethiopian organizations to strengthen the findings of success factors.

Abiot and Gomez (2012) conducted research on a successful ERP implementation in the case study of Mesfin industrial engineering and its main objective of the study was to examine the implementation of ERP systems considering the key technical, business and cultural dimensions. The last of recommendation was necessary to study and report more ERP implementations in different Ethiopian companies.

Derese (2013) has made an assessment on a successful ERP implementation framework at EthioTelecom, a government company. The main objective of the study was to present experiences that were obtained from a successful ERP implementation project. Hence, the researcher developed a framework and identified CSFs that need to be addressed during reimplementation, implementation and post-implementation phases. Finally, he recommended that more researches should be conducted to identify more contextual factors.

The Elsa (2015) on ERP post implementation management framework on Ethiopian Airlines. The Main objective of this study was to investigate technical, organizational, and operational issues of ERP post-implementation success in the context of Ethiopian airlines. The study has indicated a high-level ERP post implementation management framework.

In addition to these studies, Kibebework (2015) also conducted research focusing on the challenges and current status of ERP implementation, the case of Mugher and Derba cement industries. The main objective of this study is to assess the challenges and current status of ERP implementation in both companies, and have used both quantitative and qualitative research approaches. The researcher has found factors that affect ERP implementation, namely; disregarding organizational, people and strategy factors that encompass top management support, users training and education, effective project management, user involvement, suitability of software and hardware communication and data accuracy creates great challenge for the success of an ERP implementation. The researcher also found that there is an explicit linkage between critical success factors and ERP implementation stages. Knowing such relation and determining which critical success factors are best needed in which ERP implementation stage may enable organizations to successfully implement an ERP.

### **2.3 Summary and Literature gap**

Most of the empirical studies have mainly focused on the ERP implementation process (reimplementation, implementation and post-implementation phase) and give emphasis for technical and business aspects.

The local studies conducted also indicate that most of the studies conducted focus on the issues of success factors and challenges of ERP system. Engdayehu, (2014) indicates that the ERP system is not effective across the divisions the system is implemented. In addition, problems which hinder the practice of the system were identified. As a result, lack of appropriate training for all system users was identified as the most serious problem while proper support from the integrators side and lack appropriate customization process in relation to the companies as well as countries regulatory framework were also identified as the next most serious problem. Fetsum, (2017); Sintayehu, (2014), outline critical success factors applicable in their area of expertise for implementing ERP successfully. Dersese, (2013) developed a framework and identified CSFs that need to be addressed during reimplementation, implementation and post-implementation phases. Also examine the implementation of ERP system considering the key technical, business and cultural dimensions investigate technical, organizational, and operational issues of ERP post-implementation success. Therefore, it is noted that ERP implementation and success differ from one company to another due to different circumstances and beside this there is no previous study conducted in the assessment of ERP implementation in MOHA Soft Drinks S.C.

## 2.4 Conceptual framework

A conceptual framework is set of broad ideas and principles taken from relevant fields of enquire and used to structure a subsequent presentation. Based on the literature review, a conceptual frame work for this study was developed as shown in Figure 2 below. The major objective of the study is to assess the implementing process and challenges of implementing ERP system in MOHA Soft Drink S.C

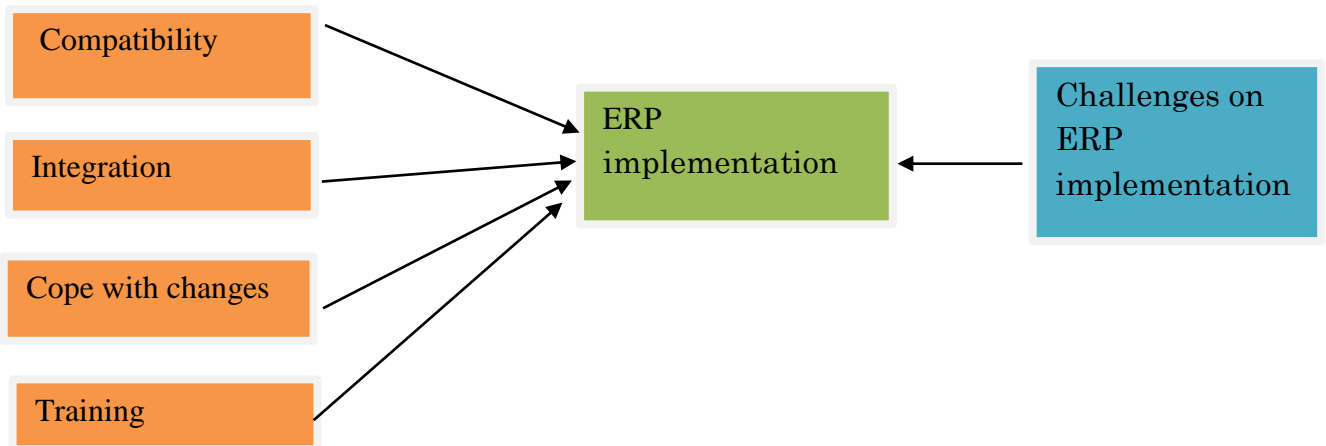


Figure 2 Conceptual Framework

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

This chapter deals with Research methodology of the study, including Research design and approach, the type of data collected, sampling method used and techniques adopted for data analysis.

#### **3.1 Description about the Study Area**

According to the employee handbook of MOHA Soft Drinks Factory (2004), the Ethiopian Nefas Silk Pepsi Cola is the first Pepsi Cola plant in the country and it was established in 1996 as a share company with an initial capital of 1 million birr. The capacity of the bottling line at the time was 20,000 bottles per hour. Teklehayamanot plant was established in 1961 as “Saba Tej” Share Company. It was nationalized in 1975 and, replacing the old line, started producing Pepsi Cola, Mirinda and Temberands in January 1978.

Mohammed Hussein Al-Amoudie (MOHA) Soft Drink industry was formed and registered under the commercial code of Ethiopian on 15th of May 1996. This company was formed after the acquisition of four plants located at Addis Ababa (Nefas silk and Tekelhaymanot). Later on, he purchased Gonder and Dessie plants on the 18th of January 1996. Currently, the factory has five branches plants, two of them are located in Addis Ababa (Nefas silk and Teklehaymanot) the remaining three plants are located in Gonder, Desie and Hawassa. The different branches across the country do have different capacities in terms of size and capabilities of production. The big ones are the one which is found at Nefas Silk (Addis Ababa) and Hawassa branches. The Medium size is Tekelehaymanot (Addis Ababa) branch. The smallest in size and capacity are Gonder and Dessie plants.

#### **3.2 Research Design**

Research design is the blueprint for fulfilling research objectives and answering research questions. It ensures that the study would be relevant to the problem and that it uses economical procedures (John et al, 2007:20-84). According to Churchill, 1979, Research design provides an overall guide for the collection and analysis of the data of a study. The



importance of the research design stems from its role as a critical link between the theory and argument that informed the research and the empirical data collected (Nachmias, 2008:245). A choice of research design reflects decisions about the priority being given to a range of dimensions of the research process (Bryman & Bell, 2007:40), and this, of course, will have considerable influence on lower-level methodological procedures such as sampling and statistical packages. Therefore, it is a blueprint that enables researchers to find answers to the questions being studied for any research project. Together with the clear research plan it provides, constraints and ethical issues that a study will, inevitably, encounter must be taken into account (Saunders et al., 2003). In this study descriptive research design is appropriate. The descriptive design is meant to explain and discuss the major challenges of ERP Implementations and their role in integrating information access.

### 3.3 Research Approach

The study will employ a mixed approach and generate both qualitative and quantitative data. The qualitative approach is adopted to get more insight on the quantitative data, to generate explanations for the ERP Implementation process and its role in the organizations. The quantitative research approach is adopted to identify the challenges of ERP Implementations and those research questions which can be analyzed by using numerical data natures. In terms of time frame, the study adopted across-sectional research in which data from the subjects is collected in the year 2020.

### 3.4 Target Population and sampling

The target population of this study is MOHA Soft Drink S.C, Teklhaymanot plant employees who are working on ERP in different departments.

**Table 3.1 Sample size**

<b>ERP Users department</b>	<b>Number of employees</b>
Logistic Department	5
Finance Department	11
Production Department	10
Techniques Department	14
Quality Department	10
Procurement Department	8
Human Resource Management	7
Sales Department	95
Total	160

All items in any field of inquiry constitute a ‘Universe’ or ‘Population.’ A complete enumeration of all items in the ‘population’ is known as a census inquiry. It can be presumed that in such an inquiry, when all items are covered, no element of chance is left and highest accuracy is obtained Kothari (2005). From the total employees of MOHA Soft Drink S.C, Teklaymanot plant, the research select ERP users department by using purposive sampling techniques because they have good insight about ERP Implementation process and its role for each department. The fact that the researcher used census method, the target population size is equal to the sample size. Hence, the total number of the target population for the study is 160 employees. Therefore, the researcher used census data since the population size is reasonable to conduct census.

### **3.5. Sampling Technique**

The fact that the researcher used census method the target population size is equal to the sampling size. Thus a total of 160 respondents.

### **3.6. Source of Data**

#### **Primary data**

The data had gathered from primary sources through the use of structured questionnaires. This will help to determine views and opinions pertaining to the ERP Implementation process.

#### **Secondary data**

The secondary data is collected from the organization reports on the ERP user’s information and implementation level and other available sources.

### **3.6 Data Collection Tools**

#### **Questioner**

The primary data needed to achieve the research objectives through structured questionnaires (both closed ended and open-ended questions) with the research participant. Survey is a typical method to collect primary data from the participant. Pre-testing of the questionnaire is conducted to get accurate and relevant information in advance from the participant of the

research. Questionnaire is prepared consisting two parts. The first part comprising demographic characteristics of respondents and the second part concerned on variable of customer relationship marketing and loyalty. To make the questionnaire more clear the study incorporates the questions in which all of them and measured on a 5-point Likert-Scale, with “1” stands for “Strongly Agree” and “5” stands for “Strongly Disagree”.

### **Observation**

Systematic observation is undertaken in the company on each department who uses ERP system to clearly answer the research questions.

### **3.7 Data Analysis**

The study utilized both quantitative and qualitative data analysis techniques. Data processing and analysis is an important part of the whole survey operation in any study. Data collected is analyzed using both descriptive and inferential analysis. Furthermore, the data were encoded, processed and analyzed using SPSS 24. The researcher uses data analysis SPSS and other instruments like tables, charts and graphs then interpret the outcome of the finding. The study incorporates the questions in which all of them are measured on a 5-point Likert-Scale, with “1” stands for “Strongly Agree” and “5” stands for “Strongly Disagree”. Therefore, mean is used as a measure of central tendency. Descriptive statistics helps mainly to organize and summarize the demographic data of the respondent and To answer the research questions, descriptive statistics such as mean values, percentage and frequency tables is used.

## CHAPTER FOUR

### DATA PRESENTATION AND ANALYSIS

#### 4.1 Introduction

This chapter deals with data presentation, interpretation and analysis of the study. It has two main parts: the first part is demographic characteristics of respondents; the second part addresses answers for the research questions. In order to address the research questions, 160 questionnaires were prepared and distributed to MOHA Soft Drink industry workers in different departments, out of these questionnaires 156 were filled and returned, the rest 4 questionnaires were unreturned, and no questionnaires were discarded due to missing data.

#### 4.2 Demographic Characteristics of the respondents

The following demographic characteristics of respondents were analyzed: Age of the employees, departments where they work, level of education and years of experience.

**Table 4.1 Educational Level and Age group cross tabulation**

		Age group				Total
		≤25	26-35 year	36-40 year	≥41	
Educational status	Below diploma	4	4	5	7	20
		20.0%	20.0%	25.0%	35.0%	100.0%
	Diploma	3	15	4	1	23
		13.0%	65.2%	17.4%	4.3%	100.0%
	BA/BSC	5	61	12	14	92
		5.4%	66.3%	13.0%	15.2%	100.0%
	Maters and above	6	5	9	1	21
		28.6%	23.8%	42.9%	4.8%	100.0%
Total		18	85	30	23	156
		11.5%	54.5%	19.2%	14.7%	100.0%

Source: Survey result, 2020

According to Table 4.1 presented above, it clearly shows 20(12.82%) of the respondents were below diploma, 23(14.74%) of the respondents were diploma holders, 92(59%) of them were degree holders and 21(13.4%) were Masters and above. Furthermore, 18(11.5%) respondents were whose age is categorized less than and equal to 25 years, 85(54.5%) respondents were in between 26-35 years and the rest, 30(19.2%) and 23(14.7%) respondents

were whose age groups fall in between 36-40 and 41 and above respectively. In terms of the proportion majority of respondents was degree holders followed by diploma, masters and below diploma respectively. 72.46% of the respondents are degree and above degree holders which show that they have adequate qualification to understand and respond to the Questionnaire which makes the data and analysis more reliable. The age group proportion shows majority of the respondents were young's (26-35) and followed by adult employees which is 36-40.

This result implies majority of the employees are responsive for technological adoptions and implementations. Educated person is expected to appreciate new ideas better and quicker than their counterparts (the less educated). From these points of views, education is a source of knowledge; qualification is the predetermining factor to be considered in ERP implementations. So from the result majority of the respondents are degree and above holders so it has significant importance in implementing the system. In general both age and education level of the respondents has a critical role in increasing the efficiency and effectiveness of the ERP users.

**Table 4.2 Experience and Educational status Cross tabulation**

		Educational status				Total
		Below diploma	Diploma	BA/BSC	Maters and above	
Experience	≤ 5	4	5	17	9	35
		11.4%	14.3%	48.6%	25.7%	100.0%
		2.6%	3.2%	10.9%	5.8%	22.4%
	6-10	4	12	35	4	55
		7.3%	21.8%	63.6%	7.3%	100.0%
		2.6%	7.7%	22.4%	2.6%	35.3%
	11-15	0	3	29	5	37
		0.0%	8.1%	78.4%	13.5%	100.0%
		0.0%	1.9%	18.6%	3.2%	23.7%
	≥ 16	12	3	11	3	29
		41.4%	10.3%	37.9%	10.3%	100.0%
		7.7%	1.9%	7.1%	1.9%	18.6%
Total		20	23	92	21	156
		12.8%	14.7%	59.0%	13.5%	100.0%
		12.8%	14.7%	59.0%	13.5%	100.0%

Source: Survey result, 2020

As table 4.2 shows above, 35(22.43%) respondents were who worked for 5 and less year proportion with different levels of educational levels, 55(35.25%) participants were who

worked 6-10 years in the organization proportion with their level of educational level mentioned above. The rest, 37(23.71%) and 28(17.94%) respondents were who worked for 11-15 years and 16 and above, respectively.

Besides; majority of the respondents who participated in the study have worked from 6 to 10 & 11 to 15 years in the institute compared to the first category proportion with their level of education. This indicates that the work experience of the respondents had adequate exposure to the work area and had a potential of responding reliable responses.

This study found that no matter how the level of working experience is > 16 years or < 5 years or between but the main thing is qualification to use the ERP system. Farther more, while the level of experience is increasing, the fitness of qualification becomes increasing; however, it may build over confidence and it might be another problem in using the system effectively. Level of education and year of experience are much related concepts in technological adoption and usage.

**Table 4.3 Department and Age group Cross tabulation**

		Age group				Total
		≤25	26-35	36-40	≥41	
Production Department		2	6	1	1	10
		20.0%	60.0%	10.0%	10.0%	100.0%
Finance Department		1	5	3	0	9
		11.1%	55.6%	33.3%	0.0%	100.0%
Sales Department		11	48	21	13	93
		11.8%	51.6%	22.6%	14.0%	100.0%
HRM Department		1	5	0	1	7
		14.3%	71.4%	0.0%	14.3%	100.0%
Technique Department		1	8	2	3	14
		7.1%	57.1%	14.3%	21.4%	100.0%
Quality Department		0	5	3	2	10
		0.0%	50.0%	30.0%	20.0%	100.0%
Logistic Department		2	2	0	1	5
		40.0%	40.0%	0.0%	20.0%	100.0%
Procurement Department		0	6	0	2	8
		0.0%	75.0%	0.0%	25.0%	100.0%
Total		18	85	30	23	156
		11.5%	54.5%	19.2%	14.7%	100.0%

Source: Survey result, 2020

The above cross tabulation result shows the proportion of the employees who are working in production department across different age groups were 10(6.41%), while 9(5.76%) respondents were working Finance department, 93(59.61%) of the respondents were who are working at sales department proportion with column age groups. Out of the different departments 7(4.48%) respondents were working at Human resource management computing with age groups, 14(8.97%) respondents were working at techniques departments, 10(6.41%) participants were working at quality departments. The rest are 5(3.2%) and 8(5.12%) who are working at logistic departments and procurement departments respectively proportioned across different age groups.

In terms of proportion out of the different age categories 26-35 years respondents were involved in different departments compared to the other age groups. From the listed departments, the majority of the respondents (59.61%) were working at sales departments and most of the employees from this department are at the age of between 26-35. Since the organizations are operating in highly competitive markets so the ERP system is working only in selected departments. The System should be implemented in the whole department.

#### **4.3 DESCRIPTIVE ANALYSIS**

Murry (2013) kind of rule of thumb to create equal intervals for a range of five points Likert scale (that ranges from strongly agree to strongly disagree in the survey questionnaire). According to Scott 1999 explained for Likert scale data from 1 (Strongly agree) to 5 (Strongly Disagree) if the sample is approximately normally distributed the interpretation should be intended for mean up to 2.8 is “Agree”, mean between 2.9 and 3.2 is “Neutral”, and mean above 3.21 is “Disagree. Therefore, the decision of each variable statistics is done based on these criteria.

In the process of analyzing the data, standard deviation was used. Small standard deviations (relative to the value of the mean itself) indicate that data are close to the mean whereas a large standard deviation (relative to the mean) indicates that the data points are distant from the mean. The mean is a poor fit of the data. Standard deviation is a measure of how well the mean represents the data. All of the variables were measured using a five-point Likert scale where 1 stands for Strongly Agree and 5 for stands of strongly disagree. Therefore, the

interpretation made using the mean of each variable, as a matter of fact the mean falls between the two ranges, hence if the mean approaches 1 the interpretation would be the respondents agree on the raised issue or variable and if it approaches to 5 the reverse would be true.

**Table 4.4 Compatibility of ERP system**

	N	Mean	Std. Deviation
system is consistent with existing work practice	156	2.8590	0.8838
the system is compatible with preferred work style	156	2.6538	0.9255
ERP implementation in the company is the best solution	156	2.8462	0.936856
compatible with prior experience	156	2.9551	1.31170
contribute in achieving vision	156	2.8590	0.87866
the system is connected with existing values of the company	156	2.6667	0.97676
Valid N (listwise)	156		

Source: Survey result, 2020

The above table 4.4 showed the compatibility of ERP software for the need of organizational processes. To rate the compatibility of ERP system the respondents gave the lower mean score (which is agreed) as the system is consistent with existing work practice (mean score of 2.85). Basically, a small standard deviation means that the values in a statistical data set are close to the mean of the data set; on average so the standard deviation of the variables the system is consistent with existing work practice is 0.8838 which means the data is consistent with the mean. The results are indicative that the ERP system is helpful in improving the organizational existing working practice by considering in the stage of system development. The system to be effective and productive should be in line with the previous working practice that has been implemented in the organizations. This finding is similar with Gargeya and Brady, (2005) the ability to implement ERP with minimum customization requires assistance from several other factors, primarily the system is consistent with working trend and re-engineering the business by considering preferred work style – both of which will help the organization to run in a more straightforward manner.



The second factor for rating the compatibility of the system is ERP is compatible with preferred work style which is the mean score is 2.65 hence, the variables lie in agree level therefore, the ERP system is compatible since the system is consistent with existing work practice and compatible with preferred work style. The second factor for rating the compatibility of the system is ERP is compatible with preferred work style which is the mean score is 2.65 hence, the variables lie in agree level therefore, the ERP system is compatible since the system is consistent with existing work practice and compatible with preferred work style. The standard deviation of the variables the system is compatible with preferred work style is 0.9255 which means the data set is consistent with the mean value since the standard deviation is less than one. Best-practices is and have been in focus for many years, in practice it means that organizations adopting an ERP system has to decide on if they should follow the inherited business processes in the system or if they should customize the software. It can be claimed that the longer an ERP has been developed the more the system has developed its best-practices. However, what is clear is that all vendors claim that their system as commercial-packaged ERP systems incorporates preferred best work style. Departing from legal requirements to industry-standards, to complete business workflows and daily tasks translates into consolidated and harmonized process as well reporting which improves user productivity the system should be incorporated with employees preferred styles. Related findings Premkumar (2003) observed compatibility to be an imperative determinant of IS innovation adoption. The adoption of new technologies can convey critical changes to the work practices of businesses and resistance to change is an ordinary organizational reaction.

On the other hand, factors considered in rating the system compatibility is ERP implementation in the company is the best solution which is the mean score of 2.84, it means the respondents were agreed as the system is the best solution for being cost effective and managing their resources. Implementing ERP systems brings an organization's business process and data access together in an integrated manner resulting in significant changes in how organizations do business. These benefits are obtained through refined business processes, improved quality and availability of information and streamlined process flows. Similarly finding Finery & Corbett, 2007 Enterprise resource planning is very crucial and a

solution as the competency, dedication and involvement of project manager and team members are imperative to make implementation a success. It is imperative that a competent implementation team should be put in place involving the organization's effectiveness.

ERP Contribute to achieving vision of the organization which is the mean score of 2.95 and the system is connected with existing values of the company the mean score is 2.66. These two variables indicate that the mean score lies also in agreed level. From the result the system was able to describe many of the complex dynamics of change in the organizations. Contributions point to the identification of the importance of cognitive subsystems in the deployment of ERP systems; to the effective implementation of organizations vision, mission and goal and achievement of strategic change. Similar finding Engidayehu (2014) indicated As far as the company's long term strategic objective concerned, a question which deals about the compatibility of the system has been done considering the long term strategic objective of the company. As far as the company's long term strategic objective concerned a question which deals about whether customization has been done considering the long term strategic objective of the company. The variable compatible with prior experience mean score is 2.95 which means the variable is not considered in rating the compatibility of the ERP system with the needs of the organizational process. Overall to make the ERP System efficient and effective in achieving the organizational goal compatibility of the system which considers the atmosphere of the organizations is an important factor.

**Table 4.5 ERP system works in data integration in the organization subsystems**

	N	Mean	Std. Deviation
the system creates centralization of data	156	2.5833	0.83216
the system initiates the centralized control	156	2.6667	0.87879
obtaining the benefits expected from ERP implementation	156	2.7885	0.83398
the system helps in customization	156	2.8397	0.8008
Non value adding jobs and processes are reduced after ERP implementation	156	3.2115	0.92475
ERP enables the integration of modules	156	2.8141	0.81397
Valid N (listwise)	156		

Source: Survey result, 2020

In table 4.5 above first by considering the mean analysis, as shown in the above table 156 respondents were asked conditions under how the ERP system works in data integration in the organizational subsystems? They responded as follows: in order to evaluate ERP system works in data integration in the organizational subsystems creating centralized data mean score is 2.58, it means that the research participants agrees as the system helps in creating centralized data flow. From the result table the standard deviation is less than one (0.83) it means the data is more consistent to the average value. The result indicated ERP systems improve enterprise efficiency and effectiveness in a number of ways. It integrates the information or data flow in a single system. The system integrates order management, making order taking, manufacturing, inventory, accounting, and distribution a much simpler and less error-prone process. Finding similar with this study is Nebiyou (2018) For the question which asked participants regarding to Centralization of data in connection with the practice of ERP project implementation, Except 5 (6%) respondents who are uncertain whether the data made centralize or not, the rest all 94% (84) of the respondents agreed and replied that the deployed ERP system fully centralized the business process of the Bank. None of them said disagree. From this it can be concluded that all the departments and the functions in the organization are integrated and linked to one single database.

The system initiates the centralized controls mean score is 2.66, obtaining the benefits expected from ERP implementation the mean score is 2.78 (which means that the mean score falls in the range of agree). This result shows that the organizational activities and processes were controlled centrally as a result it can reduce time and cost even by Reduction of Operating Cost. Empirical studies that support this finding Kibebework (2015) the researcher also found that there is an explicit linkage between critical success factors and ERP implementation stages. Knowing such relations and determining which critical success factors are best needed in which ERP implementation stage may enable organizations to successfully implement an ERP and control the operational activities of the organizations.

Depending on data integrations respondents gave the lower mean score (which is agreed) for the system helps in customization and ERP enables the integration of modules the mean score is 2.83 and 2.81 respectively. From the finding of the study ERP enables the integration of modules, the system helps in customization, obtaining the benefits expected from ERP

implementation, the system initiates the centralized control and the system creates centralization of data the system works in data integration in the organization. Similar findings with this study Noorliza (2017) this study aims to fill in the gap by investigating technological, organizational and environmental (TOE) framework among HEIs. Accordingly, the finding of the research paper is mainly that the system helps in data centralization, module interface with existing systems. In general this study indicated that ERP systems were working in data integration in the organizational subsystems and system helps to make centralized control that leads to an improved management process and in the long run it will maximize profitability.

**Table 4.6 ERP System cope with changes in the external environment**

	N	Mean	Std. Deviation
the system consider technological change	156	2.6667	0.83044
The system supporting transformational Activity	156	2.4744	0.87747
The system consider level of competition	156	2.7500	0.97317
ERP implementation fully automated	156	2.9551	1.31170
consider rapid market change	156	3.0513	1.24328
Valid N (list wise)	156		

Source: Survey result, 2020

The above table showed the ERP system cope with changes in the external environment. To clearly know the extent of ERP system copes with dynamic external environment the respondent were participated as follows: the system considers technological change the mean score is 2.66, (from the mean score result the participant reply that ERP system that has been implemented or applied in the organization is considered technological changes). From the result it implies that ERP systems to be effective and effective it should consider

technological change (being dynamic) thereby it creating a more agile enterprise that can adapt quickly while increasing the potential for making the organization productive. Similar finding Engidayehu (2014) the overall progress of ERP system, it clearly brought additional benefits such as the Ease of use, Easy information sharing, rapid performing & update, increase core competencies, improved accessibility, mobility, and usability, security standard by considering the change in the business environment.

The system supporting transformational Activity the mean score is 2.4744 since the mean score is low it means the respondents agreed that the ERP system should consider and support transformational activities. It means that an organizational ERP system should consider an external environment which since it affects ERP implementation and further organizational capabilities and performance. The firm should consider in the course of implementing ERP systems by considering progress activities. Similar to Sintayehu (2014) the researcher identified twenty factors that can be critical for the success of ERP system implementation in the context of Ethiopia. These are project planning, top management support, project management and leadership, capability of consultants, change management and communication, organizational readiness and overall knowledge transfer. The system to be effective should clearly consider and cope with the external environment.

The system consider the level of competition mean score were 2.75. It implies the mean score is fell in Agree scale (it means ERP system copes with dynamic external environment by considering level of competition). The result shows to proactively deal with the rapidly changing external environment, the organization ERP system should consider the dynamic marketing environment and to respond to the unpredictability of customers, suppliers, and competitors, firms need fast and real-time information. Similar Finding Menzer (2000) suggests that technological uncertainties will drive organizations to share information with their suppliers as technological change is not controllable by individual firms. The high level of competition will compel organizations to adopt more resources to enhance customer satisfaction through effectively managing customer complaints and building long-term relationships with customers. Found that the companies in competitive environments are more likely to adopt and implement information systems.

Two variables their mean score were 2.9551 and 3.0513 (which is neutral) were ERP implementation fully automated and considered rapid market change respectively. The result implies the system users were not aware of the ERP has incorporated with the dynamic of marketing. Overall the system to be effective and efficient it should cope with a dynamic external environment.

**Table 4.7 Employees training on ERP Implementation**

	N	Mean	Std. Deviation
Training given exhaustively	156	2.8590	0.91222
Training Given on the system was useful	156	3.1795	1.37951
helps in efficient ERP usage	156	2.8333	0.83843
useful to your functional module	156	3.0128	1.41871
includes application and utilizations of all the features of ERP system	156	2.8526	0.87408
gap between the imparted	156	2.9808	0.95195
in a way can fully replace the integrators support activity	156	2.6538	0.83273
Valid N (list wise)	156		

Source: Survey result, 2020

The above table showed Employees training on the ERP implementation in the organizations. To evaluate the extent employee training helps the ERP implementation process the respondents gave Training given exhaustively (mean score of 2.85) it means that the lower mean score tells training given many times when it needed. Basically, a small standard deviation means that the values in a statistical data set are close to the mean of the data set; on average so the standard deviation of the variables the system is consistent with existing work practice is 0.912 which means the data is consistent with the mean. The result indicated that Adoption and effective implementation is accelerated through training to make users familiar with the ERP system. Low barriers to learning also contribute to higher adoption

rates among users. Training encourages users to explore the software and enable them to find and utilize new functions and capabilities, further enhancing productivity.

Similar finding Fetsum (2017) With regards to the leverage the training programmers' had on transactional users, one of the points raised as to what worked well was the availability of computer based certifying and mandatory training which started well ahead of time. Sufficient training materials were also available online. The respondents raised a number of points on what could have been done better on this variable which include lack of information on mandatory training required by staff to take before go live, inadequate training received by process experts which in turn resulted in inability to train end users properly and unavailability of a training environment on the system.

The second factor for evaluating employees Training helps for efficient ERP usage which is the mean score is 2.83, it means that respondents agreed a timely training program is helpful for effectively and efficiently using the system for achieving the organizational goals. Finding similar with this study Kibebework (2015) The researcher has found factors that affect ERP implementation, namely; disregarding organizational, people and strategy factors that encompass top management support, users training and education, effective project management, user involvement, suitability of software and hardware communication and data accuracy creates great challenge for the success of an ERP implementation.

Training includes application and utilizations of all the features of ERP system (the mean score was 2.85) and in a way can fully replace the integrators support activity which was 2.65 mean score hence, the above four variables lays in agree level therefore, the training given to the employees was helpful on the system usefulness, in efficient usage, utilizations of all the features of ERP system and in a way can fully replace the integrators support activity. This finding is similar with Engidayehu (2014) for the question raised to assess if employees have got training on ERP system interface and its functionality exhaustively for all users, training has been given for all target groups who are expected to work on the system.

On the other hand, factors considered in employee training on ERP implementation process in the Training Given on the system was useful which is the mean score of 3.17, useful to your functional module which is the mean score of 3.01 and gap between the imparted the

mean score is 2.98. These three variables indicate that the mean score lies also in neutral level.

**Table 4.8 Challenges in the implementation of ERP System**

	N	Mean	Std. Deviation
data cleaning challenge	156	2.7885	0.88017
problems in users adaptability	156	2.6538	0.88843
system network interruption	156	2.5577	0.88133
communication failures	156	3.0577	1.20344
lack of management commitment on the system	156	3.1538	1.43753
Technical challenges	156	2.7885	0.93398
Lack of knowledge and skill	156	2.6282	0.81064
resistance to accept the ERP system	156	2.6987	0.98278
Valid N (listwise)	156		

Source: Survey result, 2020

There might be various major problems or challenges when ERP implementation which is due to ERP project is specifically an IT project, it could have technological challenges, organizational challenges, environmental challenges, people challenges and process challenges that are encountered while implementing ERP project.

First by considering the mean analysis, as shown in the above table 156 respondents were asked their opinion about major challenges during ERP implementation in MOHA Soft Drink They responded as follows: challenges during ERP project implementation were data cleaning challenge mean score is 2.78, the lower mean score it mean that research participant agreed data cleaning were one of the challenges which affect effective implementation of the ERP system in the organizations. According to Nebiyu. (2018) regarding Data cleansing challenge, none of the respondents have said very low or low, rather except 7 participants or almost 8% of them who were uncertain whether it was a challenge or not, the remaining 92 % (82) of the respondents have argued that while ERP project implementing Data cleansing



was a very high challenge. From this point of view, we can conclude that during recruiting of ERP IT projects in the bank, there were migrating & clearing up data challenges when definition can be created and system requirements definition can be documented.

problems in users adaptability mean score is 2.65, system network interruption mean score is 2.55, Technical challenges which was 2.78 mean score, Lack of knowledge and skill the mean score was 2.62 and resistance to accept the ERP system mean score was 2.69 (which mean that the above six variables mean score falls on the range of agree). Depending on employee challenges in ERP implementation the respondents gave the higher mean score (which was neutral) for communication failures and lack of management commitment on the system the mean score is 3.05 and 3.15 respectively. From the finding of the study data cleaning challenge, problems in users adaptability, system network interruption, Technical challenges, Lack of knowledge and skill and resistance to accept the ERP system these are the major challenges that affect effective ERP implementations. Similar findings on challenges of ERP implementation by Nebiyu, (2018) ERP project implementing indicates that data cleansing was a very high challenge, user's adaptability is low therefore, it is cleared that at the stages of ERP project implementing, there was expected to trigger major changes in way of doing business across the bank.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATION**

This research is on assessing the enterprise resource planning implementation in MOHA Soft Drinks Industry S.C. the study aimed to explore the compatibility of ERP system, to examine the data integrations in the organizational subsystems, to analyze the degree to which a firm accepts the ERP system to cope with changes in the external environment, to examine the extent of employees training on the ERP implementation and investigating challenges of the ERP system implementation. This section presents the summary, overall conclusion of the study, and finally recommendations for both the company and for researchers, and finally the limitations of the study.

#### **5.1 Summary**

The findings of the study shows the majority of the respondents who participated in the study has worked from 6 to 10 & 11 to 15 years in the institute. 72.46% of the respondents are degree and above degree holders which show that they have adequate qualification to better understand and adopt the system. From the finding of the study ERP enables the integration of modules, the system helps in customization, obtaining the benefits expected from ERP implementation, the system initiates the centralized control and the system creates centralization of data the system works in data integration in the organization.

The result also indicates that the system considers technological change, the system supporting transformational Activity and the system considers level of competition. The system works to cope with the changes in the external environment.

The result further shows that the training given to the employees was helpful on the system usefulness, in efficient usage; utilizations of all the features of ERP system and in a way can fully replace the integrators support activity. But the finding also indicates, some of the respondents replied, that there is not enough training intervention to capacitate employees on the system. Therefore, even though the company has awareness on the role training for employees on the newly introduced IT solution, valuable effort has not been exerted in this regard. In addition to the training for end-users, super users who are expected to perform all

the functional as well as technical support are not trained in a way that can fully replace the integrator's role during post-implementation phase.

Finally the result of the study indicates the major challenges that affect effective ERP implementations in MOHA Soft Drinks S.C. the challenges are data cleaning challenge, problems in users adaptability, system network interruption, Technical challenges, Lack of knowledge and skill and resistance to accept the ERP.

## **5.2 Conclusions**

Achieving operational efficiency has become very challenging for organizations especially giant public organizations. As a result, several organizations across the world are using an IT application such as Enterprise Resource Planning (ERP) to refine their business processes, to make information readily available and streamline process flows. For organizations like the United Nations, achieving operational efficiency is key to its success and attaining trustworthiness in the face of member states resulting in transforming of the organization as mandated by the General Assembly

The ERP system is compatible since the system is consistent with existing work practice and compatible with preferred work style. As far as the company's long term strategic objective concerned, a question which concerns the compatibility of the system and whether customization has been done considering the long term strategic objective of the company.

Considering the investments organizations spend on implementing ERPs, it is always decisive that they review and understand the environment they are operating in and prepare the organization and staff for the big change in an effective and efficient manner by reflecting on critical success factors, highly pertinent to the success of the implementation process. It is also very critical to manage, support and maintain permissible control of the system to get the best out of the benefits it brings to organizations.

To conclude and based on the findings, the case study has reflected that the ERP implementation of MOHA Soft Drinks S.C was less than adequate in terms of change management and training and a number of challenges that faced the implementation process have been pointed out although the ERP was implemented on the planned go live date.

### 5.3 Recommendation

As to the conclusion of further work, apparently there are issues that the study draws attention to and based on findings of the current study and relating to previous works, the following recommendations are forwarded.

- Adequate awareness has to be created by training of employees of the benefit and usage of ERP so as to reduce employee resistance to the implementation of ERP systems. Since the major purpose of Enterprise Resource Planning (ERP) system implementation is to reinforce the efforts and performance of employees towards the achievement of organizations goals and objectives, MOHA has to do a lot by delivering the required training programs for both end-user as well as super users to bring the required level of skills on the system. To do so, a competency assessment has to be implemented to examine the required skill level and the actual system functionality, so that the right training for the right target group can be delivered for the better utilization of the system.
- Competency assessment has to be implemented to examine the required skill level and the actual system functionality, so that the right training for the right target group can be delivered for the better utilization of the system.
- The study recommends that there have to be enough technical support personnel and establish an ERP support Office with available resources to deal with regular checks of what is working and what is not and provide technical support that is within the company. Having the right people and skills on the ERP implementation team is vital to a successful deployment. Since an ERP system is an organization-wide solution and its users are in various departments, the team you build should be cross-functional and cross-departmental from highly-skilled IT personnel to active daily users of the system.
- Communication between the management and the ERP users have to be open and frequent by having brief and continuous meetings with the team to keep on progression and address any issues that may have come up. Based on the achievements of the communication methods used, try to widen the advocacy and popularization efforts to increase acceptance of the ERP.

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**ST. MARY'S UNIVERSITY**  
**SCHOOL OF GRADUATE STUDIES**  
**DEPARTMENT OF ACCOUNTING AND FINANCE**

Dear participants,

I am conducting a study on “*ENTERPRISE RESOURCE PLANNING IMPLEMENTATIONS IN MOHA SOFT DRINKS INDUSTRY S.C: CHALLENGES AND PROSPECTS*” This research is conducted in partial fulfillment of the masters of Degree in Accounting & Finance (MBA) at St, Mary’s university school of graduate. The survey is intended to explore the compatibility of ERP software with the needs of organizational processes, to examine the data integration in the organizational subsystems, to analyze the degree to which a firm accepts the ERP system to cope with changes in the external environment, to examine the extent of employees training on the ERP implementation and to investigate the major challenges in the implementation of ERP in the departments.

The questionnaire will not take more than 15 minutes of your time. I do not foresee that you will experience any negative consequences by completing this questionnaire. The researcher will keep any individual information provided herein confidential, not to let it out of his possession, and to analyze the feedback received only at a group level. It will be a great contribution if you may complete all the items covered in the questionnaire since your opinion is of utmost importance for this study.

I thank you in advance for sharing your valuable experience and time in completing the questionnaire

Part One: General Information - Please put '√' in the box

Age Group:

≤25       26 – 35       36 – 40       41 and above

Educational Status:

Below Diploma       Diploma       BA/BSC       Masters & Above

Experience:

≤ 5       6 – 10       11 – 15       16 and Above

Which Department are you working in?

Production       Sales       Technique       Quality

Finance       HRM       other department

**PART TWO: COMPATIBILITY OF ERP SOFTWARE RELATED QUESTIONS**

Please read each statements in the first column carefully and show the extent of your agreement on the statements by putting (√) the in the next column using the following rating scale (Likert Scale). The rate are - 1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, 5 = Strongly Disagree

**1. How do you rate the level of compatibility of ERP software with the needs of organizational processes?**

Statement	1	2	3	4	5
ERP system is consistent with existing work practice					
The system is compatible with preferred work style					
ERP implementation in the company is the best solution in satisfying the customer demand					
ERP System Compatible with prior Experience					
ERP implementation highly contribute in achieving company's vision					
The system is connected with existing values of the company					

Any Additional Points

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**PART THREE: DATA INTEGRATION IN THE ORGANIZATIONAL SUBSYSTEMS  
RELATED QUESTIONS**

**1. How the ERP system works in data integration in the organizational  
Subsystems?**

Statement	1	2	3	4	5
The system creates Centralization of data					
The ERP system initiates the Centralized control of the data flow					
The organization is obtaining the benefits expected from ERP implementation					
The System's helps in customization and integration of datas					
Non-value adding jobs and processes are reduced after ERP implementation					
ERP enables the Integration of modules interface with existing system					

Any Additional Points

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**PART FOUR: THE ERP SYSTEM TO COPE WITH CHANGES IN THE EXTERNAL ENVIRONMENT RELATED QUESTIONS**

**3. To what extent the ERP system cope with changes in the external environment ?**

Statement	1	2	3	4	5
The system consider Technological change(the degree which technology are evolving and transforming					
The system has been supporting the transformational activity held in the company					
The System Consider level of competition (the degree which rivals can offer more favorable deals to customers)					
ERP implementation makes the working process of MOHA Soft drink fully automated					
The system consider rapid market change (change in customer expectations)					

Any Additional Points

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**PART FIVE: EMPLOYEES TRAINING ON THE ERP IMPLEMENTATION RELATED QUESTIONS**

**4. To what extent of employees training help the ERP implementation process?**

Statement	1	2	3	4	5
Training was given exhaustively					
The training given on the system was useful to your functional module					
The training helps in efficient ERP usage					
The training given on the system was useful to your functional module					
The training includes application and utilization of all the features of ERP system					
There was a gap between the imparted training and Moha business requirements					
MOHA system users are trained in a way that can fully replace the integrators support activity					

Any Additional Points

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**PART SIX: CHALLENGES IN THE IMPLEMENTATION OF ERP RELATED QUESTIONS**

**5. What is your opinion about the major challenges or problems encountered during ERP project implementation in MOHA Soft Drink S.C?**

Statement	1	2	3	4	5
There is Data cleansing challenge in the system.					
The ERP system has Problem in User's adaptability					
There is system network interruption					
The ERP system experience Communication failures					
There is a lack of Management commitment on the system					
ERP system contains some Technical challenges					
There is lack of Knowledge and skill for ERP implementation					
There is resistance to accept the ERP system.					
The system encounters Standardization problems					

Any Additional Points

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